

Patent Claims

1. A fuel cell system comprising:

at least one fuel cell unit, having an anode-side medium-supply input for supplying an operating medium, an anode-side medium-discharge output for discharging an outgoing anode stream, a cathode-side medium-supply input for supplying an oxidizing agent, and a cathode-side medium-discharge output for discharging an outgoing cathode stream;

a dewatering device for removing water from a flow of medium;

and

means arranged in an inflow portion of the dewatering device for adjusting a rate at which water is separated out of the flow of medium.

2. The fuel cell system according to Claim 1, wherein the means for adjusting the separation rate comprise a fan and drive unit for driving the fan, so that the water-containing flow of medium can be set in circulating motion inside the dewatering device.

3. The fuel cell system according to Claim 2, wherein the drive unit drives the fan in a load-dependent manner.

4. The fuel cell system according to Claim 1, wherein the dewatering device has a housing which, at least in regions, is provided as a cooling surface for the purpose of condensing water out of the flow of medium.

5. The fuel cell system according to Claim 1, wherein a clear cross section of the housing increases in the direction of flow.

6. ✓ The fuel cell system according to Claim 1, wherein the dewatering device is arranged in an anode-side outgoing stream of medium of said at least one fuel cell unit.

7. ✓ The fuel cell system according to Claim 1, wherein the dewatering device is arranged in a cathode-side outgoing stream of medium of said at least one fuel cell unit.

8. ✓ A dewatering device for removing water from a flow of gaseous medium of a fuel cell system, said dewatering device comprising:

    a housing;  
    an inlet for receiving said flow of gaseous medium into the housing;  
    an outlet for discharging said flow of gaseous medium from the housing;

    a fan arranged in an inflow region of said dewatering device, for adjusting a rate of flow of said gaseous medium in said dewatering device;

    a motor for driving the fan; and  
    a control unit for controlling operation of the motor for driving the fan in a load dependent manner.

9. The dewatering device according to Claim 8, wherein said controlunit drives said fan in a manner which maintains said flow of gaseous medium at a rate at which water separation by said dewatering device is optimized.

10. The fuel cell system according to Claim 9, wherein a clear cross section of the housing increases in the direction of flow.

11. The fuel cell system according to Claim 9, wherein the dewatering device is arranged in an anode-side outgoing stream of medium of said at least one fuel cell unit.

12. The fuel cell system according to Claim 9, wherein the dewatering device is arranged in a cathode-side outgoing stream of medium of said at least one fuel cell.

13. A method for removing water from a flow of gaseous medium of a fuel cell having cathode and anode inputs and cathode and anode outputs, said method comprising:

providing a dewatering device connected to receive said flow of gaseous medium;

adjusting a rate of flow of gaseous medium in the inflow region of the dewatering device, in a manner dependent on an operating state of said fuel cell.

14. A method for removing water according to Claim 13, wherein said rate of flow is adjusted in a manner which maintains said flow of gaseous medium at a level at which water separation by said dewatering device is optimized.